CLAIMS

1. Method of determining the living character of an element (D) carrying a fingerprint, consisting of making measurements of impedance (Z) at various points on the said element (D) by means of electrodes (Ei, Ej), characterised in that it consists of determining whether the said impedance measurements (Z) satisfy a law of variation of the impedance (Z) measured by the said electrodes (Ei, Ej) as a function of the surface area (S) of the said electrodes (Ei; Ej) covered by the said element (D) such that $Z = f_{Dt}(S)$.

2. Method according to Claim 1, characterised in that it consists of measuring the impedance (Zab) between two first electrodes (Ea, Eb) with a predetermined surface area (Sab), measuring the impedance (Zcd) between two second electrodes (Ec, Ed) with a predetermined surface area (Scd) and checking that the points (Pab, Pcd) defined by the impedance values (Zab, Zcd) and the surface area (Sab, Scd) corresponding to the first and second electrodes (Ec, Ed) belong to the same curve (C) satisfying the said variation law.

3. Method according to Claim 1 or 2, characterised in that it consists, firstly, of making a first measurement of impedance (Zab) between two first electrodes (Ea, Eb) with a predetermined surface area (Sab) and determining the curve (C) satisfying the said variation law, and then secondly making a second measurement of impedance (Zed) between two second electrodes (Ec, Ed) with a predetermined surface area (Scd) and checking that the point (Pcd) defined by the said impedance (Zed) and surface area (Scd) values corresponding to the second electrodes (Ec, Ed) belong to an area of tolerance (T) situated

around the predefined curve (C).

4. Method according to Claim 2 or 3, characterised in that the said second impedance measurement (Zed) is made randomly between two electrodes (Ec, Ed) of the same size or between two electrodes of different sizes (Ec, Ea).

5. Method according to Claim 2 or 3, characterised in that the said second impedance measurement (Zcd) is made alternately between two electrodes (Ec, Ed) of the same size or between two electrodes of different sizes (Ec, Ea).

6. Fingerprint sensor (1) making it possible to determine the living character of an element (D) carrying a fingerprint, characterised in that it comprises at least four electrodes, at least two of which have smaller surfaces than two other with larger surfaces, means for measuring the impedances at least between on the one hand two electrodes with small surfaces and on the other hand two electrodes with larger surfaces and means of checking that the said impedances measured by the said measuring means follow a predetermined law of variation of the impedance as a function of the surface area of the electrodes used for the measurement.

7. Fingerprint sensor (1) according to Claim 6, characterised in that the said two electrodes with smaller surfaces are less distant from each other than two electrodes with larger surfaces.

8. Fingerprint sensor (1) according to Claim 6 or 7, characterised in that it comprises a first set of four single-piece electrodes with identical large surfaces and a second set of two electrodes in the form of intersecting combs with

identical surfaces less than the said large surfaces.

9.   Fingerprint sensor (1) according to Claim 6 or 7, characterised in that it comprises a first set of four single-piece electrodes with identical large surfaces and a second set of four single-piece electrodes with identical surfaces smaller than the said large surfaces.

10.   Fingerprint sensor (1) according to Claim 6 or 7, characterised in that it comprises a first set of four single-piece electrodes with identical large surfaces and a second set of two single-piece electrodes with identical surfaces smaller than the said large surfaces and a third set of two electrodes in the form of intersecting combs with identical surfaces smaller than the said large surfaces.

11. Fingerprint sensor (1) according to one of Claims 6 to 10, characterised in that it comprises an optical system (SO) producing an image of the fingerprint and determining the surface area (S) of the measuring electrodes (Ei, Ej) not entirely covered by the fingerprint.